

**REGION OF QUEENS MUNICIPALITY
PUBLIC HEARING
DEVELOPMENT AGREEMENT WITH LIVERPOOL WIND ENERGY
STORAGE PROJECT INC. AND PROVINCE OF NOVA SCOTIA
TUESDAY, NOVEMBER 10, 2015
8:55 A.M.**

MEMBER OF COUNCIL: Mayor Christopher Clarke, Chair
Councillor Darlene Norman
Councillor Brian Fralic
Councillor Jack Fancy
Councillor Peter Waterman
Councillor Susan MacLeod
Councillor Raymond Fiske
Councillor Bruce Inglis

MEMBERS OF STAFF: Richard MacLellan, Chief Administrative Officer
April Whynot-Lohnes, Municipal Clerk
Christine Watson, Recording / Management Secretary
Jennifer Keating-Hubley, Director of Finance
Jill Cruikshank, Director of Economic Development
Mike MacLeod, Planner
Heather Cook, Community Development Coordinator
Norm Amirault, Director of Recreation & Community Facilities
Steve Burns, Manager, QPEC

MEMBERS OF PUBLIC: Michael Lee, LighthouseNow
Leon Robertson
David Dagley
John Winters
Doug White

CALL TO ORDER:

Mayor Clarke called the Public Hearing to order at 8:55 a.m.

REMARKS:

Mayor Clarke reviewed that the purpose of this Public Hearing was to provide any interested person with an opportunity to present an oral or written presentation to the Council of the Region of Queens with regards to its intention to enter into a development agreement with Liverpool Wind Energy Storage Project Inc. and Province of Nova Scotia to allow for the construction of two wind turbine generators on property identified as PID # 70169180, which is located north of Highway 103 in Brooklyn, and is located in a Mixed Use Rural Residential (R5) Zone.

**Public Hearing
Development Agreement with Liverpool Wind Energy Storage Project Inc. and
Province of Nova Scotia
November 10, 2015
Page 2**

Mayor Clarke reviewed the procedures for the Hearing which were provided on the agenda.

REPORTS AND PRESENTATION BY STAFF:

There were no reports presented at this meeting.

WRITTEN AND ORAL PRESENTATIONS:

There were no written or oral presentations at this meeting.

CLOSING OF PUBLIC MEETING:

Mayor Clarke asked three times if there were any members of the public who wished to make a presentation on this matter. There were no requests from the audience to speak.

Mayor Clarke declared the Public Hearing closed at 8:56 a.m.



Mayor Christopher Clarke, Chair



April Whynot-Lohnes, Municipal Clerk



Christine Watson, Recording / Management Secretary

Date approved: November 24, 2015

DISCUSSION PAPER
PLANNING ADVISORY COMMITTEE
OCTOBER 5, 2015
WIND TURBINE GENERATORS IN THE
MIXED USE RURAL RESIDENTIAL (R5) ZONE

BACKGROUND:

The Planning Department has received an application for a development agreement for the construction of two (2) 2.35 megawatt wind turbine generators in a residentially zoned area. The subject property, identified as PID# 70169180 is located north of Highway 103 in Brooklyn, approximately half way between Nickersons Pond and Herring Cove Lake. The Property is owned by the Provincial Crown and is zoned Mixed Use Rural Residential (R5) under the Region's Land Use Bylaw. A copy of the application and summary report are attached. The applicant; Liverpool Wind Energy Storage Project Inc.; intends to lease the subject property from the landowner to facilitate this development.

Wind turbine generators are not permitted as-of-right in the (R5) Zone. This being said; however, Council has set out provision in the Region's Municipal Planning Strategy (MPS) to consider such uses by way of a development agreement. The MPS sets out that:

Wind turbine generators are quickly becoming one of the most prominent forms of renewal energy in the world. Over the last several years there has been an increasing amount of interest in the siting of wind turbine generators in Nova Scotia, and the Region of Queens Municipality is no exception. Although the coastline has been identified as the most ideal place for locating these structures, opportunities also exist in other areas of the Region as suitable sites for such development. Council recognizes that the economic and environmental benefits of wind turbine generators can be significant. However, there has been a fair amount of controversy surrounding the erection of these structures, with the primary concerns centring on noise, visual impacts and blade and ice throw. Council feels that careful consideration is required to limit the potential impacts on the surrounding area.

Policy 11.2.2

It shall be the intention of Council to consider large-scale wind turbine generators in the Mixed Use Rural Residential (R5), Mixed Use Coastal Residential (R6), Coastal Commercial (C5), Heavy Industrial (M2), Fishing and Marine (M3), Recreation / Open Space (P1) and Conservation (O1) Zones by development agreement, under Section 225 of the Municipal Government Act and subject to:

- a. *Policy 12.6.1;*
- b. *The developer hosting a public information meeting prior to the public hearing stage, to hear comments from the public. The developer shall:*
 - i. *Serve personal notification of the meeting on all property owners within 305 metres (1,000 feet) of proposed site;*
 - ii. *Place a notice for the meeting in the local newspaper outlining the date, time and location of the meeting. Notification shall be placed in the newspaper at least fourteen (14) days prior to the date of the meeting.*

- c. *Submission of a decommissioning plan, which will become part of the development agreement.*

When evaluating development agreements Council must be cognizant of the overall goals and policies of this MPS. In particular, it should have regard to the criteria listed in Policy 12.6.1.

Policy 12.6.1

It shall be the intention of Council, when evaluating a Development Agreement, to have regard to the following matters where applicable:

- a. *the proximity of the proposed development to recreational and other community facilities;*
- b. *the impact of the proposed development on:*
 1. *existing residential and institutional uses in the area with particular regard to the use and size of the structures that are proposed, buffering and landscaping, hours of operation for the proposed use (where applicable), noise and other similar features of the use and structure in order to minimize any potential land use conflicts with adjacent uses;*
 2. *adequacy of municipal services with particular regard to demands on the sewer system, water system, fire protection, refuse collection, police protection, existing schools and churches;*
 3. *pedestrian and vehicular traffic circulation with particular regard to the traffic that the development will generate, the adequacy of the proposed accesses to and from the site, traffic flows in and around the site in terms of its ability to handle any new traffic, and the adequacy of the proposed parking areas; and*
 4. *structures on abutting lots in terms of proposed exterior siding and in terms of architectural characteristics taking into consideration such things as height, roof line and lot coverage to minimize any potential land use conflicts between the proposed development and structures on abutting properties.*
- c. *submission of a site plan showing the location of the uses and the structure or structures on the lot, building layout, parking areas, accesses to and from the site, signage provisions, buffering or landscaping provisions and lighting provisions;*
- d. *adequacy of the proposed lot to ensure that adequate screening and landscaping can be undertaken to minimize the potential for any land use conflicts with adjacent uses.*

Policy 12.6.2

It shall be the intention of Council to recognize that Development Agreements shall contain such terms and conditions as are necessary to ensure that the development is consistent with the policies of this MPS. To this end, Development Agreements shall include some or all of the following terms where applicable:

- a. *the specific use or uses of the land;*
- b. *the size of the structures if new ones are proposed or the size of any proposed expansions to existing structure or structures;*
- c. *provisions for adequate buffering to screen the development from adjacent conflicting land uses;*
- d. *any matter that may be addressed in a Land Use Bylaw (i.e. parking requirements and yard requirements);*
- e. *time limits for the initiation of construction;*
- f. *noise levels;*
- g. *the hours of operation and the maintenance requirements of the proposed use or uses; and*

CONSIDERATIONS:

- ⇒ Subject Property – the proposed site is located north of Highway 103 in the community of Brooklyn. The property is a 135 acre lot which is currently vacant wood land.
- ⇒ The distance to the nearest dwelling is 2,300 metres.
- ⇒ Tower height will range from 80m to 100m, with the total height ranging from 120m to 165m. Given the location of the proposed turbines, visual impacts on the surrounding area should be greatly reduced.
- ⇒ Approvals from Transport Canada and NAV Canada have been received.
- ⇒ Access to the site will be by way of an existing access at Exit 18 off Highway 103.
- ⇒ Typical lifespan for a wind turbine generator is 20 to 30 years, but can extend up to 40 years. As part of their environmental assessment, the Proponent has outlines a program for decommissioning the generators upon reaching the end of their service life.
- ⇒ On February 24, 2015, the Proponent held a public consultation session at the Liverpool Fire Hall. Personal mailout to landowners within two kilometers of site. 30 people attended meeting.
- ⇒ Nova Scotia has no specific sound guidelines for wind turbines. However, Department of Environment, through their environmental assessment process, requires that predicted noise levels not exceed 40dBA at nearest receptors.
- ⇒ There are currently no governmental guidelines in Canada related to shadow flicker. Industry standard; however, has established no more than 30 hours of shadow flicker per year or no more than 30 minutes of shadow flicker on the worst day of the year.

When siting new wind turbine generators towers, the majority of complaints seem to centre around the sound generated by the turbines and the shadow flicker generated by the turbine blades. As part of the Proponents environmental assessment, Strum Consulting was contracted to complete a sound and shadow flicker modeling assessment. Assessment was conducted utilizing receptors within a 2 kilometre radius of the proposed turbine locations. Based on the predictive modeling, the sound and shadow flicker levels are not expected to exceed Department of Environments requirements or accepted industry standards.

TENTATIVE TIME FRAME:

<u>DATE</u>	<u>PROCEEDURE</u>
October 5, 2015	Planning Advisory Committee
October 13, 2015	Council
October 20, 2015	First Public Notice
October 27, 2015	Second Public Notice
November 10, 2015	Public Hearing

November 10, 2015
November 17, 2015
December 2, 2015

Council
Notice of Passing
Appeal Period Ends

RECOMMENDATION:

THAT the Council of the Region of Queens Municipality give notice of its intention to enter into a development agreement with Liverpool Wind Energy Storage Project Inc. to allow for the construction of two (2) wind turbine generators on property identified as PID# 70169180 and located in the Mixed Use Rural Residential (R5) Zone;

AND THAT a Public Hearing be scheduled for November 10, 2015 in the Council Chambers of the Municipal Administration Building located at 249 White Point Road, Liverpool, NS at 8:45 a.m.

Region of Queens Municipality

249 White Point Road P.O. Box 1264 Liverpool, NS B0T 1K0 Phone (902) 354-3455 Fax (902) 354-7473



Region of Queens Municipality

APPLICATION FOR AMENDMENTS TO THE MUNICIPAL PLANNING STRATEGY, LAND USE BY-LAW AND APPLICATION FOR DEVELOPMENT AGREEMENT

FOR OFFICE USE ONLY

Amendment Type: Development Agreement
PID #: 70169180
Assessment #:

NAME OF APPLICANT(S): LIVERPOOL WIND ENERGY STORAGE PROJECT INC.

LOCATION: PID 70169180 (NEAR BOUNDARY OF PID 70167598)

CIVIC NUMBER: — STREET NAME: —

MAILING ADDRESS: 4 MACDONALD AVENUE, DARTMOUTH, NS
B3B 1C5

TELEPHONE: _____ (H) 902-482-8687 (W)

DESCRIPTION OF REQUEST:

DEVELOPMENT OF WIND FARM WITH TWO WIND TURBINE
GENERATORS, AND ASSOCIATED UTILITY ROUTING
AND REGENERATIVE AIR ENERGY STORAGE SYSTEM.

If applicable:

The undersigned acknowledges that he/she is responsible for ad costs associated with the request and attached is a cheque in the amount of \$700.00.

Hilary Steele

Applicant(s) Signature


SEPTEMBER 11 / 2015

Date

HILARY STEELE

PROJECT ENGINEER-IN-TRAINING.

902 802 3020.



Project Description
Liverpool Wind Energy Storage Project

Revised September 9, 2015

Liverpool Wind Energy Storage Project Inc.
4 MacDonald Ave
Dartmouth, NS B3B 1C5
Tel: (902) 482-8687

1.0 TABLE OF CONTENTS

Project Overview.....	1
Regulatory Framework.....	3
Federal.....	3
Provincial.....	3
Municipal.....	4
Project Information.....	5
Liverpool Wind Farm.....	5
Storage Facility Location and Infrastructure.....	6
Construction.....	7
Decommissioning.....	7
Overview of Environmental Studies and Consultation Programs.....	8

Appendices

Appendix A Site Plan

PROJECT OVERVIEW

The Liverpool Wind Energy Storage Project (Project; LWESP) involve the proposed Liverpool Wind Farm (LWF) and the associated proposed Regenerative Air Energy Storage (RAES) System. The LWF is approximately four kilometers (km) northwest of Brooklyn, in the Region of Queens Municipality. The proposed wind energy facility will consist of two Enercon-92 (E92) 2.35 megawatt (MW) wind turbine generators (WTGs), for a total nameplate capacity of 4.7MW. This Project is the first wind energy facility to be associated with a Regenerative Air Energy Storage System. Additionally, the RAES System will be the first grid interconnected energy storage system in Nova Scotia.

The RAES System will connect directly to the provincial power grid, at the same point of interconnection as the LWF, near the Innovacorp Demonstration Centre (IDC), i.e., former Bowater Mersey Paper Mill. The storage system will act as a buffer to the output of the LWF; but will not be connected to the LWF directly. The energy storage facility, i.e., RAES System, is considered a separate project by Nova Scotia Environment (NSE), and is not within the scope of the Environmental Assessment registered on September 8, 2015. Furthermore, the energy storage project does not trigger an Environmental Assessment on its own. The scope of the Liverpool Wind Energy Storage Project includes the WTGs, the RAES System, as well the associated infrastructure and the transmission lines that will run from the WTGs and the RAES System to the point of interconnection near the IDC facility.

Approval from the Nova Scotia Department of Energy (NSDOE) was given under the COMFIT program on May 20, 2014 (amended June 6, 2014). The Project owner was awarded a COMFIT capacity of 3.6MW for the Project. This approval allows the Project to be part of the COMFIT program pending other requisite approvals, such as a release under the Nova Scotia Environmental Assessment Regulations. This Environmental Assessment (EA) assesses the two WTG facility at the nameplate capacity of 4.7MW facility, not at the COMFIT capacity of 3.6MW facility.

The 3.6 MW wind energy COMFIT capacity will provide approximately 40 000 gigajoules (GJ) of renewable energy that will satisfy the energy needs of approximately 1300 Nova Scotia homes, according to Statistics Canada data on electricity consumption (Statistics Canada, 2007). As a community energy project it provides the renewable energy locally via the distribution grid, which

will assist in the reduction of loss of electricity that occurs in transmission lines. In addition, community members will be given the opportunity to share ownership of the Project as investors in the Community Economic Development Investment Fund (CEDIF).

In summary, this is a small community-based facility that will provide distributed renewable energy to the grid, and provide local economic benefit. The Project and its design have been located in consideration of technical, financial, social, and ecological issues. Practical and mitigative measures have been included in the Project design to minimize environmental effects.

REGULATORY FRAMEWORK

Federal

There are no environmental approvals expected to be required from Federal authorities for the Project. The Project will not result in impacts such as harmful alteration, disruption or destruction of fish habitat or impact navigable waters. No work is proposed on Federal lands nor are Federal monies involved. Environment Canada (EC) / Canadian Wildlife Services (CWS) will be informally consulted with respect to migratory birds and the outcome of the ongoing studies.

Aviation approvals are required for wind energy projects. The Project owner is in the process of creating appropriate applications to NAV Canada, Canadian Coast Guard, Transport Canada, and Department of National Defense (DND). No issues are expected for the LWESP Project at this time.

Provincial

As the Project involves two 2.35 MW WTGs, it triggers a provincial Environmental Assessment (EA) as per the Environmental Assessment Regulations. For any wind energy project with a capacity exceeding 2 MW, according Schedule A of the Regulations, a Class 1 EA is required. The Environmental Assessment was registered on September 8, 2015, and the decision due date is October 28, 2015.

The Project owner has identified wetlands on site and will implement the mitigation sequence of avoidance, minimization and compensation as per the Nova Scotia Wetland Conservation Policy (2011). Field work by certified wetland delineators was completed in late August 2014 to follow up on initial wetland identification in July, as well as late season rare plant surveys. Consultation with Nova Scotia Environment (NSE) and Nova Scotia Department of Natural Resources (DNR) will be completed as appropriate, as related to any necessary wetland impact, in order facilitate the requisite approval under the Activity Designation Regulations. There are no proposed alterations of watercourses required in this Project.

The Project owner obtained a Letter of Authority from DNR for the purpose of installing one meteorological tower to commence wind testing. Upon completion of this wind data collection, as well as Environmental Assessment approval, the Project owner will apply for a Crown Land Lease to install the two WTGs.

Municipal

The parcel of land proposed for the LWF is zoned as Mixed Use Rural Residential (R5) and deemed acceptable for WTG development through the Region of Queens Municipal Planning Strategy. The land planned for the energy storage portion of the project is zoned as Heavy Industrial (M2), and the Municipal Planner has advised that additional permitting is not required for the energy storage project activities proposed for the former Bowater facility site.

Information such as site layouts and WTG descriptions are provided to the Municipality to aid with the Development Agreement Application, and provide definitive details for the decision process. A commitment to consult with the community is also required as part of the Development Agreement Application process, by way of published notices in two different local newspapers and a public hearing.

PROJECT INFORMATION

Liverpool Wind Farm

The Project owner plans to construct and operate a two E92 WTG, 4.7MW wind farm near Liverpool, in the Region of Queens Municipality. The nearest communities surrounding the site are Brooklyn (4km SE) and Milton (4km SW). The proposed two WTGs will be located on Crown land (PID 70169180) at the following locations (See Figure 1):

- WTG 1: 44° 05' 31.6" N, 64° 42' 28.6" W
- WTG 2: 44° 05' 13.8" N, 64° 42' 19.6" W

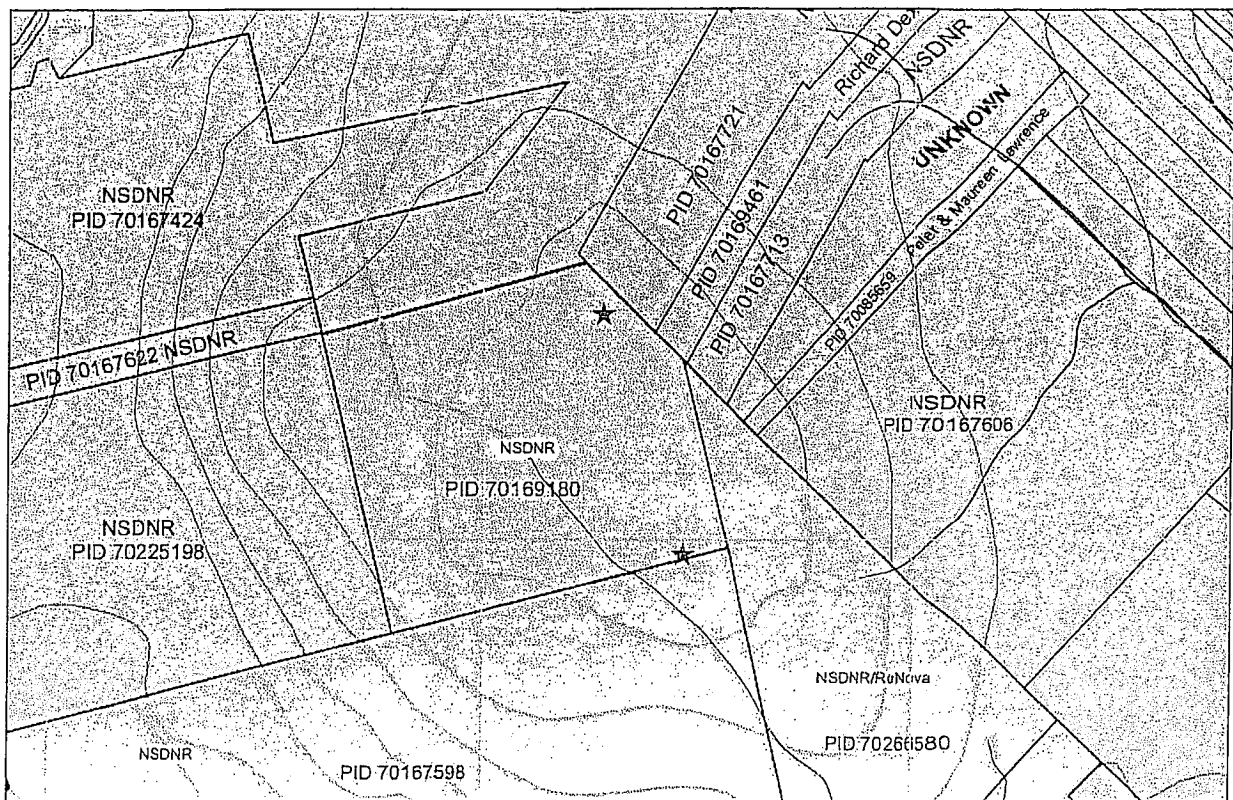


Figure 1. Wind turbine generator locations and surrounding PIDs.

Initial plans for the Project involved installing three WTGs at the site. The Project owner reduced the number of turbines from three to two; allowing less clearing required and greater setback distances to be attained. The area is rural in nature with some ribbon residential development along Nickerson's Pond Road and Milford Street, with the closest distance to a residential dwelling

from the WTGs being approximately 2300m. An equipment laydown area is required at each turbine site to facilitate the construction, including assembling and erecting the wind turbine generators. No maintenance buildings, fencing, or substation will be required for the LWF.

The transmissions lines from the LWF to the 0.5 MW RAES system will run parallel to pre-existing lines from Nickerson's Pond Road to the storage facility, i.e., IDC, located in the former mixing room of the Bowater Mersey Pulp Mill facility. The point of interconnection for the wind farm will be on the IDC grounds, where a small line extension (approximately 500m) will run across the IDC grounds to the Storage Facility. The LWF location and the storage facility location, is outlined in Figure 2 (also provided in Appendix A).

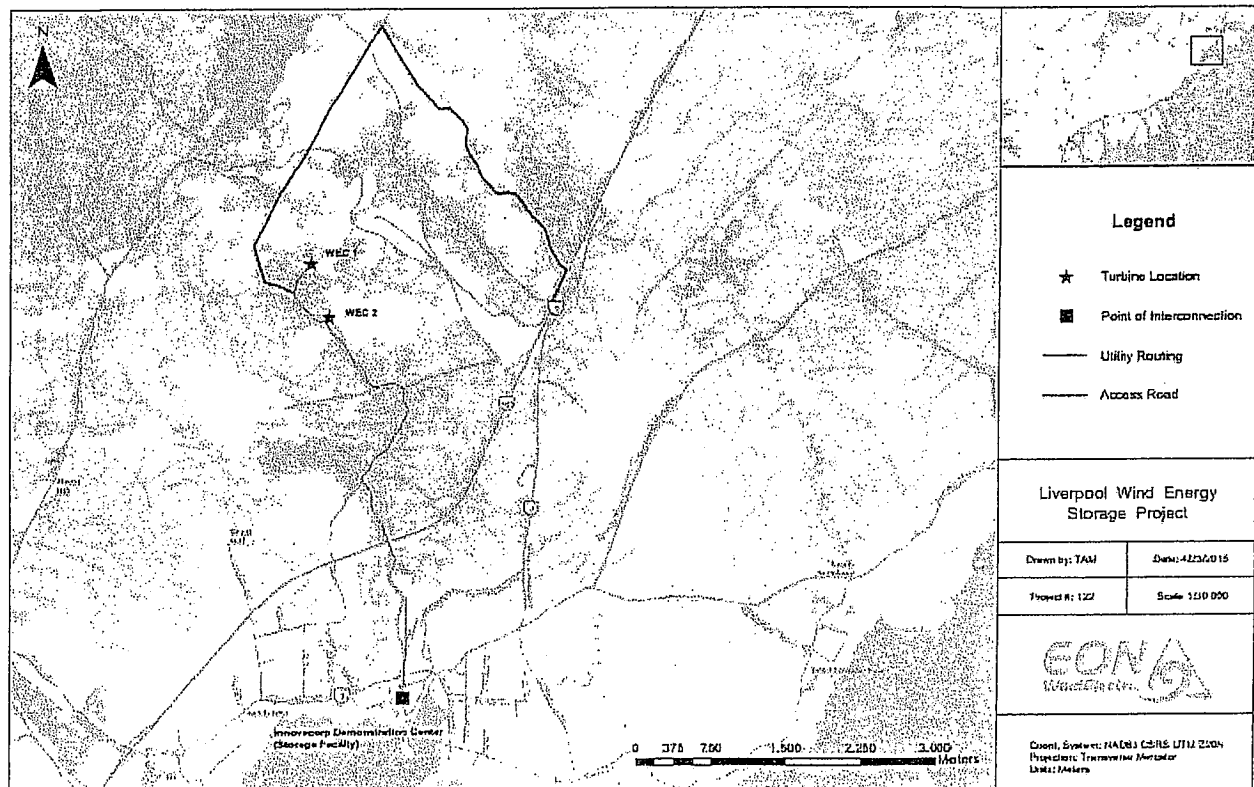


Figure 2. Site Plan outlining general location of wind turbines and storage facility (IDC).

Storage Facility Location and Infrastructure

The energy storage component of the Project will use a 0.5 MW Regenerative Air Energy Storage (RAES) system, developed by LightSail Energy Inc., which has been proven to be able to store energy for peak usage periods or during intermittent wind resource availability. The system uses

compressed air as the storage medium, resulting in a low cost system with a long service life and low environmental impact.

All of the energy storage equipment will be located at the IDC. There will be up to six air storage modules, along with up to six water reservoir modules, that will be contained within 40ft intermodal shipping containers. The mixing room of the former Bowater Mersey Pulp Mill will house the remaining required equipment, such as: compressor/expander, motor/generator, transformer, variable frequency drive, and heat exchanger.

Construction

The construction phase is deemed to be the most relevant to the EA process. Table 1 outlines the proposed work schedule for the LWESP. The schedule is subject to change and proper notification will be given to the regulators and other stakeholders as appropriate.

Table 1: Construction Project Schedule for Liverpool Wind Energy Storage Project

Site Activity	
Clearing and Grubbing	Q1 2016
Civil/Electrical	Q2 2016
LWF Installation	Q4 2016
Energy Storage Installation	Q1 2017
Commercial Operation Date	Q2 2017

Decommissioning

The design life of a wind turbine is typically 20 to 30 years; capital improvements and replacement program can extend safe and efficient operations well beyond 40 years. Decommissioning of both the WTGs and the storage site, when it is necessary or desirable, will be undertaken in accordance with the regulatory regime in place at the time.

At the end of their useful life, the WTGs and storage equipment will be decommissioned and all equipment will be dismantled and disposed of in a manner that meets all regulatory requirements. Such activities would likely involve the preparation of the site, e.g., the establishment of access for construction equipment and the mobilization of that equipment including cranes. The sections of the towers would be taken apart and would be reused, recycled or disposed of in accordance with regulatory requirements. After the towers had been dismantled and removed from the site,

the site itself would be restored to a state similar to that which currently exists through re-grading and re-vegetation. Foundation pedestals may be removed and re-filled with local soils.

Overview of Environmental Studies and Consultation Programs

The following table briefly lists the studies and consultation that has been completed to date as part of the Project EA. The Project owner, and its consultants, have designed the desktop and field work to match the understood expectations of the government regulators as well as the site-specific environmental and socio-economic setting of the proposed Project. The outcomes of these studies and programs were included in the EA report submission registered on September 8, 2015, and can be viewed at <https://www.novascotia.ca/hse/ea/projects.asp>.

Tables 2 Completed Environmental Studies and Field Programs.

Field Study	Field Programme	Consultant (Company)	Date Field Work Completed
Archaeological Investigation	Archaeology Screening and Reconnaissance	Melanie Smith (Strum Consulting), in association with Stephen Garcin (Boreas Heritage Consulting Inc.)	October 1, 2014
Avian Surveys	Spring & Fall migration counts and Summer breeding survey	Andrew Horn (Dalhousie) and Ron d'Entremont	April 26-July 13, 2014 and August 30-October 20, 2014
Bat Monitoring	Acoustics and Anabat detection.	Dr. Hugh Broders and Dr. Lynne Burns (St. Mary's University)	July 28-October 9, 2014
Moose Survey	Moose Tracks and Pellet Group Inventory Surveys	Jody Hamper (Independent Consultant)	April 18, 2014, February 1, 2015, and March 9, 2015
Rare Plant, Wetland & Watercourse Surveys	Early & Late season rare plant survey, wetland identification and delineation, electrofishing.	Andrew Sharpe and Mike Parker (East Coast Aquatics Inc.)	July 9, 2014, August 29, 2014, and September 16, 2014
Ambient Sound and Light	ISO 9613-2 Acoustics and WindPro v. 3.0 Software	Scott Dickey (Strum Consulting)	February 2015
Visual Impact Study	Photograph collection and predictions using GIS Software and Digital Elevation Model points	Andy Walter (Strum Consulting)	February 2015

Appendix A
Site Plan

